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a camera in the upper portion of said cabinet for taking an image of the fruit particles while they remain within the fruit matrix;

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a light source in said cabinet; and

a computer with image analyzing software which analyzes said image of the fruit particles in order to measure the fruit particles without having removed them from the fruit matrix.

10. (Thrice Amended) Apparatus for the measurement of fruit particles in a matrix without removing the fruit particles from this matrix, comprising:

a substantially opaque cabinet with a non-reflecting inside surface;

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a sample tray with a light-transmitting bottom, said sample tray adapted to receive a fruit matrix of fruit particles which are within a matrix selected from the group consisting of a sugar matrix, a starch matrix or a sugar and starch matrix, said fruit matrix being of the kind used in fruit fillings, toppings, dairy products or cooked food products;

a camera in the upper portion of said cabinet for taking an image of the fruit particles while they remain within the fruit matrix;

a light box with light intensity adjusting switches;

an incident light source; and

a computer with image analyzing software which analyzes said image of the fruit particles in order to measure the fruit particles without having removed them from the fruit matrix.

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12. (Thrice Amended) A process for the measurement of fruit particles in a matrix without removing the fruit particles from this matrix comprising: